

from the west appear to control the changes and motions in the special temporary areas of low pressure. Indeed the latter appear to owe their very existence to the flow of air over the chain of high mountains and the resulting formation of eddies. Eddies rotating around horizontal axes form cloud and rain on the east, but foehn winds and pamperos on the west of the axis. Eddies around vertical or inclined axes constitute low pressures whose perpetuity and development depend almost wholly upon the question whether the rising air with cloud and rain is on the east side or the west side of the circulation. The general tendency of the low areas is to move southeastward toward the coast of Chile and Argentina and then if they live, to pass northeastward over the east coast.

BRAZIL.

The Department of Marine of the United States of Brazil has for the past nine years published a monthly bulletin, giving in full the results of the daily observations at various hours, including Greenwich mean noon observations, taken at a number of stations along the eastern coast, and a few in the interior. In addition to the strictly meteorological features the bulletin gives the results of the magnetic observations made at the central station, Moro de San Antonio, Rio Janeiro. The work for each six months is summarized in semiannual volumes, the periods covered being October–March and April–September respectively. This work is under the immediate supervision of Captain Americo Silvado, of the Brazilian Navy.

The State of São Paulo has had an independent meteorological service since 1886, under the direction of the Comissão Geographica e Geologica de São Paulo, publishing the results of its observations in an annual volume of *Dados Climatologicos*. General observations are made at the hours of 7, 2, and 9, at about twenty stations, and rainfall observations at several others.

At Juiz de Fora, in the State of Minas Geraes, an independent observatory has been maintained by the municipality since 1893, and has published its observations.

BOLIVIA.

The Sociedad Geografica de La Paz regularly publishes observations made at La Paz. The bulletin of this society has also occasionally contained summaries of observations at other places in Bolivia, among which are Sucre, Oruro, and Trinidad. Private individuals have published observations at Potosi and Cochabamba.

GUIANA.

In British Guiana a fairly complete system of rainfall observations is maintained throughout the colony under the direction of the Government Botanic Garden at Georgetown. In Georgetown itself records of temperature, sunshine, and rainfall are kept up; the record of the latter element extends back to 1880. The observations are published in the Report on Botanic Gardens, Georgetown.

A first-class meteorological observatory is maintained at Cayenne, French Guiana, the data from which are published in the *Annales of the Bureau Central Meteorologique de France*.

For Dutch Guiana (Colony of Surinam) the Meteorological Jaarboek of the Netherlands has contained, since 1880, daily observations taken at Paramaribo. The French *Annales* gives an annual summary of monthly means of observations at Burnside-Coronie.

COLOMBIA.

Colombia has a Meteorological Office, but no reports have been received recently. Monthly totals of rainfall, number of rainy days, and greatest fall in 24-hours for Cartagena are published in the *Annales of the Bureau Central Meteorologique de France*.

ECUADOR.

The Observatorio Astronomico y Meteorologico de Quito seems to be the only meteorological observatory in Ecuador. It publishes an annual résumé of meteorological observations, of which the first volume, for September, 1895, to October, 1896, has been received.

URUGUAY.

In Uruguay the Jesuit Colegio Pio de Villa Colon has maintained a meteorological station of the first order near Montevideo since 1883. The Meteorological Society of Uruguay, established in 1890, maintains a number of second order and rain stations and publishes the results in its *Resumen de las Observaciones Pluviometricas*.

E. D. ARCHIBALD AND THE MODERN KITE.

The Editor regrets that by a slip of the pen in the second column of page 257 of the MONTHLY WEATHER REVIEW for June, "Abercromby" was published instead of "Archibald." The great work done by E. D. Archibald in 1883 in the way of reviving the use of the kite for meteorological purposes was mentioned in the MONTHLY WEATHER REVIEW for 1895 and 1896, but lest modern readers should forget what we owe to him we may add that Archibald carried out a systematic series of observations with anemometers at different heights above the ground during 1883, 1884, and 1885. He used steel music wire as a kite line almost from the start in 1883, and attained heights up to 1500 feet above the ground. He also invented and patented in 1885 the kite balloon to which he gave that name. A combination of the kite and the balloon that we believe was the first ever made.

Mr. A. Lawrence Rotch was present at one of the first flights at Tunbridge Wells, and in 1887 Mr. Archibald took a photograph from a kite, which is also one of the first if not the very first occasion on which that was done. The great improvements that have been made in kite work by Mr. Rotch, the Weather Bureau, and various investigators all over the world have been the natural outcome of Mr. Archibald's demonstration of the general utility of the idea. He may fairly claim to have started the modern systematic kite flying with steel wire for scientific purposes. At the meeting of the British Association for the Advancement of Science in 1884 at Montreal, he brought the importance of the subject prominently to the attention of those present and ventured to predict an important future for this method of studying the atmosphere. His name should replace that of Abercromby on page 257.

THE MOUNT WEATHER OBSERVATORY.

In response to a correspondent inquiring about the Mount Weather Observatory, the Chief of Bureau has lately replied as follows:

The Mount Weather Observatory is not for solar physics alone, nor are the forecasts of the U. S. Weather Bureau likely to be founded upon solar observations only, but upon the data and study of the atmosphere itself.

The Weather Bureau makes forecasts of weather and of floods that are of general and sometimes of critical importance to agriculture, commerce, and many other human interests. These forecasts depend upon our knowledge of a branch of science whose field is the study of the earth's atmosphere as a whole.

Recent research has shown that there is a possibility of improving these forecasts by a more complete study of the changes going on in the radiation that we receive from the sun, but this is a minor matter compared with the study of the so-called waves of temperature, pressure, and moisture that pass over the earth's surface, and the mechanical laws that govern the movements of the air. As progress in our knowledge of the mechanics of the earth's atmosphere can only be made by means of daily weather charts, laboratory experiments, and mathematical study, therefore the U. S. Weather Bureau has established a meteorological institution of broad scope, designated as the Mount Weather Ob-